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GEOPHYSICAL VARIABLES AND BEHAVIOR: CIV. POWER-FREQUENCY MAGNETIC FIELD TRANSIENTS (5 MICROTESLA) AND REPORTS OF HAUNT EXPERIENCES WITHIN AN ELECTRONICALLY DENSE HOUSE[1]

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Summary.—Magnetic field measurements for power frequencies were measured continuously over two 24-hr. periods for a small house in which two adults who exhibited above normal occurrences of complex partial epileptic-like experiences had reported "waves of fear", tactile sensations, nightmares, apparitions, and a sensed presence. The experiences occurred within an area in which irregular amplitude modulations between 1 microT and 5 microT (50 mG) from 60-Hz sources, with durations of a few seconds to several tens of seconds, were measured. This case suggests that transient, complex temporal patterns of power-frequency magnetic fields generated by less than optimal grounding in dwellings and telluric currents may be sufficient to evoke experiences in the brains of sensitive individuals. Cultural labels, applied by the experients, then affect the explanations and expectancies for these experiences.

We have found that normal human beings experience vibrations, tingling sensations, odd touches, inability or reluctance to move, odd smells, odd tastes, fear or terror, intense dream-like images, and the presence of another (sentient) being when complex magnetic fields are applied through the cerebral hemispheres (Persinger, Tiller, & Koren, 2000). The strength of the fields, which are between 0.1 microT and 1 microT, are less important than their temporal structures. We investigated the reports of "a haunt" by two people who lived within a small, two-story house in which the electrical wiring and grounding were anomalous and which contained an unusually high density of appliances and electronic equipment. As a result, the occupants within the house were exposed to the types of temporal complexities of magnetic field patterns we induce experimentally through the brain.

When water began to leak (Spring, 1996) through the bedrock upon which the house (Sudbury, Ontario) was directly built, the couple experienced nightmares, sensations of something touching their feet, shadows on the wall, breathing and whispering sounds, intense waves of fear, and a sensed presence. The husband also experienced an apparition of a woman, appearing in his left visual field and then moving through the bed (a mattress on the floor). Most of the experiences were lateralized to the left side of both experients. Their young son was reported to awaken screaming on some nights between 0200 and 0400 hr. and to display marked hypertonicity of the limbs that were similar to infantile seizures. Both adults displayed scores more than 2.5 standard deviations above the mean for complex partial epileptic-like signs (Roberts, Gorman, Lee, Hines, Richardson, Riggle & Varney, 1992). The man had previously sustained two closed head injuries.

Measurements of the entire house with a power-frequency meter (Metex M-3800 with sensor) indicated the average background intensities ranged between 0.1 microT and 1 microT.

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However, on the ground floor within an area about 2 m wide whose edge was adjacent to the bed, the variable peak strengths were between 1 and 4 microT (40 mG). These transients occurred for a few seconds to several tens of seconds, with interstimulus intervals that ranged from seconds to hours. Most of the intense experiences had occurred within the region of the intense fields or in the living room directly above. Quick sampling (1-sec. bins) of the intensities for 2 hr. with a 486 laptop computer yielded markedly irregular, complex temporal shapes.

Continuous monitoring (20-sec. bins) of the area for two separate 24-hr. intervals indicated that most of the anomalous fields occurred during the night. The only sharp transient, with a strength of about 3 microT and a duration of about 100 sec., occurred about 0300 hr. when the woman felt a presence and the baby screamed. We also observed that most of the episodes of sharp, electromagnetic transients during the morning hours (08 hr. to 10 hr.) occurred when neighbours were likely to have been utilizing more electric power.

We obtained the intensity per min. for the z component for the geomagnetic field at Fredericksburg, Virginia from the observatory's WEB site and adjusted the time for the discrepancy between local and universal time. Lag/lead analyses for ± 30 min. were then completed between these values and the magnetic field strengths per min. within the area for the section of continuous recording (18 hr., 1,080 cases, 1 min. each). The strongest coefficients, about $-.60$ (all $p < .001$), occurred between the 60-Hz intensities and the z values during the previous 18 to 22 min.

Haunt-like experiences can be evoked easily in normal people when weak (1 microT) complex magnetic fields are applied experimentally along the right side of the brain and generated through the cerebral hemispheres. We have found that more homogeneous, whole-body exposures of people who display greater functional asymmetry in cerebral function, due to normal electric anomalies or acquired injuries, also enhance these experiences. The experient's explanation for these experiences would then effect their influence upon the perception of subsequent events.

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